Mathematics Placement Glossary Study Sets (effective Fall 2018)
(Tentative)

Terms	Definitions
Absolute value	the absolute value of a number x, denoted by $\|x\|$, is its distance from zero on the number line
Arithmetic sequence	a sequence which has a common difference between adjacent terms
Arithmetic series	the sum of a finite arithmetic progression
Asymptotes	the asymptotes are lines that are approached at infinity. Continuous graphs can cross horizontal asymptotes or oblique asymptotes, but they cannot cross vertical asymptotes. Lines that are boundaries of the hyperbola
Augmented matrix	a matrix form of a linear system of equations. It is created by adding the load vector (i. e., the constants on the right of the equal signs) as an additional column to the right of the coeifficinet matrix. The new column is set apart by a vertical line
Binomial coefficients	the number of ways to choose k −elements from an n −element set
Binomial theorem	describes the algebraic expansion of powers of a binomial
Change of base formula	a formula that allows you to rewrite a logarithm in terms of logs written with another base
Circle	a circle is the set of all points in a plane that are at a given distance (the radius) from a given point (the center)
Coefficient	the number factor that appears in a product
Coefficient matrix	a matrix formed by the coefficients in a linear system of equations.
Common logarithm	the logarithm base 10 of a number
Completing the square	a procedure used to find the exact zeros of a quadratic function or the exact solutions of a quadratic equation
Complex number	a number of the form $a + bi$ where a and b are real numbers and i is the square root of -1 (the imaginary unit, written i, is the number whose square is -1. That is, $i^2 = -1$ and $i = \sqrt{-1}$)
Conic sections	a conic section is formed when a right circular cone with two parts, called nappes, is intersected by a plane
Complex conjugates	two complex numbers that differ only in the sign of the imaginary part (opposite or conjugate of $a + bi$ is $a - bi$)
Coordinate	a number that identifies a position relative to an axis in a coordinate system
Cosine	The cosine is the ratio of the length of an angle's adjacent side to the length of the hypotenuse in a right triangle.
Cramer's rule	a method for solving a linear system of equations using determinants
Degree of a polynomial	the highest (power) degree of any term in the polynomial
Diagonal matrix	a square matrix which has zeros everywhere other than the main diagonal. Entries on the main diagonal may be any number, including 0
Difference quotient	the slope of the secant line through two points on the graph of a function
Dimensions of a matrix	the number of rows and columns of a matrix, written in the form rows x columns

Digit	any of the symbols used to write numbers (0, 1, 2, 3, 4, 5, 6, 7, 8, 9)
Discriminant	the expression under the radical sign in the quadratic formula used to determine the number and type of solutions as repeated, distinct, or complex roots
Distance	the property created by the space between two objects or points, e.g., the length of a shortest line segment connecting two objects
Double-Angle Formulas	The double-angle formulas are a set of formulas that express trigonometric functions of twice an angle in terms of the trigonometric functions of the original angle.
Domain	the set of all values of the independent variable (x −coordinates) in a relation
Ellipses	a regular oval shape, traced by a point moving in a plane so that the sum of its distances from two other fixed points (the foci) is constant
End behavior	the appearance of a graph as it is followed farther and farther in either direction. For polynomials, the end behavior is indicated by drawing the positions of the arms of the graph, which may be pointed up or down
Equivalent systems of equations	systems of equations that have the same solution set
Even function	a function with a graph that is symmetric with repect to the y axis. A function is even if and only if $f(-x) = f(x)$
Equilateral polygon	a geometric figure having all equal sides
Exponent	a right-hand superscript indicating the number of times a quantity is multiplied by itself (applies only to positive integer exponents)
Factorial	the product of a given integer and all smaller positive integers
Fibonacci sequence	the sequence of numbers for which the next term is found by adding the previous two terms, with starting terms 1 and 1 (or 0 and 1)
Foci	two fixed points on the interior of an ellipse (or a hyperbola) used in the formal definition of the curve. A parabola has a focus
Gauss-Jordan elimination	a method of solving a linear system of equations
Geometric sequence	a sequence which has a common ratio only between succesive terms
Geometric series	a geometric series is a series with a constant ratio between successive terms
Geometry	the branch of mathematics concerned with the properties of points, lines, surfaces, solids and higher dimensional analogs
Half-Angle Formulas	A set of formulas that express trigonometric functions of half an angle in terms of the trigonometric functions of the original angle.
Horizontal line test (HLT)	a test used to determine if a function is one-to-one
Hyperbola	for two given points, the foci, a hyperbola is the locus of points such that the difference between the distances to each focus is constant
Hypotenuse	the side of a right triangle opposite the right angle or the longest side of a right triangle opposite the right angle
Identity matrix	a square matrix which has a 1 for each element on the main diagonal and 0 for all other elements
Index	the number of the root for a given radical
Inequality	a mathematical sentence that contains less than, greater than, less than or equal to, greater than or equal to, or not equal to symbols
Intersection	the points of two objects have in common

Interval notation	a way of writing the set of all real numbers between two endpoints. the symbols [and] are used to include an endpoint in an interval, and the symbols (and) are used to exclude an endpoint from an interval
Inverse function notation	the inverse of function f is written f^{-1}
Inverse of a matrix (right)	for a square matrix A, the inverse is written A^{-1} when A is multiplied by A^{-1} the result is the identity matrix. Left inverse is defined similarly
Isosceles	having two equal sides
Iterative formula	an iteration is repeatedly recalculating successive terms in a pattern until a specific numeric condition is met
Law of cosines	The law of cosines is a formula relating the side lengths and angles of a general triangle which is a generalization of the Pythagorean theorem.
Law of sines	The law of sines is a formula relating the ratios of sines of angles to the opposite side lengths for a general triangle.
Logarithm	a quantity representing the power to which a fixed number (the base) must be raised in order to produce a given number
Major axis and minor axis	the major and minor axes of an ellipse are diameters (lines through the center) of the ellipse. The major axis is the longest diameter and the minor axis the shortest
Midpoint	a point equidistant from the ends of a line segment or the extremities of a figure
Natural logarithm	the logarithm base e of a number
Oblique asymptote	an asymptote that is neither horizontal nor vertical
Odd function	a function with a graph that is symmetric with respect to the origin. A functions is odd if and only if $f(-x) = -f(x)$
One-to-one function	a function passes both the vertical line test and horizontal line test
Ordered pair	a pair of numbers that give the location of a point on a grid
Parabola	a conic section created from the intersection of a right circular conical surface and a plane parallel to a generating straight line of that surface
Parallel	being everywhere equidistant and not intersecting (two lines in the same plane that do not intersect)
Pascal's triangle	the numbers which make up Pascal's triangle are called binomial coefficients
Perpendicular	lines that cross in a right angle (or a + sign) (two lines that lie in the same plane and meet at a 90° (right) angle)
Piecewise function	a function that uses different formulas for different parts of its domain
Product	a quantity obtained by multiplication
Pythagorean theorem	states that in a right triangle, the square of the hypotenuse is equal to the sum of the squares of the legs
Pythagorean triples	the increasing triples (a, b, c) of positive integers that satisfy $c^2 = a^2 + b^2$ for example, 3, 4, 5; 5, 12, 13; 8, 15, 17; and 7, 24, 25 etc.
Quadratic equation	an equation in which the highest power of an unknown quantity is 2
Quadratic formula	a quadratic equation written in the form $ax^2 + bx + c = 0$ has the solutions $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

Range	the set of all possible dependent variable ($y-$coordinates) in a relation (a set of points in the $xy-$plane)
Row operations	methods used to transform matrices
Sum	a quantity obtained by addition
Scalene	having all sides of unequal length
Sine	The sine is the ratio of the length of a given angle's opposite side to the length of the hypotenuse in a right triangle.
Solution (of equations, inequalities, and systems)	solutions of equations, inequalities, and systems are values for the variable that make the equations, inequalities, or systems true
Slope	the ratio of a line's vertical change (rise) to the corresponding horizontal change (run)
Slope intercept form	an equation written in the form $y = mx + b$
Sequences	a sequence is an ordered list of objects
Series	a series is the sum of the terms of a sequence
Tangent	(1) In trigonometry, the tangent of an angle is the ratio of the length of a given angle's opposite side to the length of the angle's adjacent side in a right triangle. (2) In geometry, two figures are said to be tangent to one another if they "just touch".
Trigonometric Addition Formulas	The trigonometric addition formulas are a set of formulas that express trigonometric functions of sums of angles in terms of the trigonometric functions of the original angles.
Trigonometry	Trigonometry is the study of angles and of the angular relationships of planar and three-dimensional figures.
Vertical line test (VLT)	a test use to determine if a relation is a function
Vertices (of an ellipse)	the endpoints of the major axis of an ellipse, where the ellipse make its sharpest turns. (The endpoints of the minor axis of an ellipse are called co-vertices)
Unit Circle	The unit circle is a circle of radius one.

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